Shaluoman MO6EL26

Happymodel Mobula6 2024 1S Brushless Drone User Manual

Model: MO6EL26

Introduction

Thank you for choosing the Happymodel Mobula6 2024 1S Brushless Drone. This ultra-light 65mm micro FPV whoop is designed for both indoor and outdoor flight, offering an exciting first-person view experience. This manual provides essential information for setting up, operating, maintaining, and troubleshooting your drone to ensure safe and optimal performance.

Safety Information

Always read and understand all safety warnings and instructions before operating the drone.

- **Adult Supervision:** This product is intended for adults. Children should only operate under direct adult supervision.
- **Battery Safety:** Use only compatible 1S LiPo/LiHV batteries. Do not overcharge, over-discharge, or short-circuit batteries. Always charge batteries in a fire-safe location and never leave charging batteries unattended.
- **Propeller Hazard:** Keep fingers, hair, and loose clothing away from rotating propellers. Propellers can cause serious injury.
- **Flight Environment:** Fly in open areas free from obstacles, people, and animals. Avoid flying near power lines, buildings, or in crowded spaces. Do not fly in strong winds or adverse weather conditions.
- **Line of Sight:** Maintain visual line of sight with the drone at all times, even when flying FPV.
- **No GPS Return:** This drone does not feature GPS or an automatic return-to-home function. Do not fly

beyond your control range.

- **Water and Moisture:** Keep the drone away from water and moisture to prevent damage to electronic components.

Package Contents

Verify that all items are present in your package:

- Happymodel Mobula6 2024 1S Brushless Drone (MO6EL26)
- FX17-B 1/3 CMOS 800TVL Camera (Integrated)
- SuperX ELRS AIO 5-IN-1 Flight Controller (Integrated)
- Spare Propellers
- USB Cable (for flight controller configuration)
- User Manual (this document)

Note: Battery is NOT INCLUDED and must be purchased separately.

Product Overview

The Mobula6 is a compact and lightweight FPV drone designed for agile flight. Its durable frame protects the propellers, making it suitable for indoor environments and minor impacts.

Front-angled view of the Mobula6 drone, highlighting its compact design and integrated FPV camera.

Top-down view of the Mobula6 drone, illustrating the arrangement of components within the frame.

Close-up of a propeller and SE0702 KV28000 brushless motor, designed for high efficiency.

Key Components:

- **Frame:** 65mm wheelbase, lightweight and durable.
- **Motors:** SE0702 KV28000 brushless motors for powerful and smooth flight.
- **Flight Controller:** SuperX ELRS AIO 5-IN-1 Flight Controller with integrated Serial ELRS Receiver.
- **Video Transmitter (VTX):** New onboard OpenVTX with adjustable power from 25mW to 400mW.
- **Camera:** FX17-B 1/3 CMOS 800TVL Camera for FPV feed.

Setup

1. Battery Installation

The Mobula6 uses a 1S LiPo/LiHV battery (not included). Ensure the battery is fully charged before use.

The battery connector on the Mobula6 drone.

1. Carefully connect your charged 1S battery to the drone's power connector. Ensure correct polarity.
2. Secure the battery to the drone's battery tray using the provided rubber band or strap (if included) to prevent it from shifting during flight.

2. Binding with ExpressLRS Receiver

The Mobula6 comes with an integrated ExpressLRS receiver. You will need an ExpressLRS compatible radio transmitter to bind with the drone.

1. Power on the drone by connecting the battery.
2. Immediately power off the drone. Repeat this power cycle three times (on-off-on-off-on). On the third power-on, the receiver's LED should flash rapidly, indicating it is in binding mode.
3. On your ExpressLRS compatible radio transmitter, navigate to the ELRS LUA script or binding menu and select 'Bind'.
4. Once bound, the receiver's LED on the drone should turn solid, indicating a successful connection.
5. If you have a binding phrase set on your transmitter, ensure it matches the drone's firmware.

3. Flight Controller Configuration (Betaflight)

The drone's flight controller is pre-configured, but advanced users may wish to customize settings using Betaflight Configurator.

1. Download and install the latest Betaflight Configurator software on your computer.
2. Connect the drone to your computer using a micro USB cable.
3. Launch Betaflight Configurator. The drone should be recognized.
4. Click 'Connect' to access the flight controller settings.
5. You can adjust PID tunes, rates, OSD settings, and other parameters. Refer to online Betaflight

resources for detailed guidance.

6. Always save changes and disconnect the USB cable before powering the drone with a battery.

Operating Instructions

1. Pre-Flight Checks

- Ensure the drone's battery is fully charged.
- Check that all propellers are securely attached and free from damage.
- Verify that your radio transmitter's battery is charged and that it is bound to the drone.
- Confirm your FPV goggles or screen are powered on and receiving a clear video signal from the drone.
- Choose a safe, open area for flight, clear of people, animals, and obstacles.

2. Taking Off and Landing

A pilot operating an FPV drone with goggles and a radio transmitter.

1. **Power On:** Connect the battery to the drone. Place the drone on a flat, level surface.
2. **Arming:** Arm the motors using the designated switch or stick command on your radio transmitter (typically throttle down and yaw right). The motors will spin slowly.
3. **Take Off:** Slowly increase the throttle. The drone will lift off the ground. Maintain a stable hover at a safe altitude.
4. **Landing:** Gently decrease the throttle until the drone descends slowly. Once it touches the ground, immediately disarm the motors using your transmitter's disarm switch or stick command (typically throttle down and yaw left).

3. Flight Controls

Standard FPV drone controls (Mode 2 assumed):

- **Left Stick (Throttle/Yaw):**
  - Up/Down: Controls altitude (Throttle).
  - Left/Right: Rotates the drone horizontally (Yaw).
- **Right Stick (Pitch/Roll):**
  - Up/Down: Tilts the drone forward/backward (Pitch).
  - Left/Right: Tilts the drone left/right (Roll).

4. FPV Camera Usage

The integrated FX17-B camera provides a live video feed to your FPV goggles or monitor. Ensure your FPV receiver is tuned to the correct video frequency/channel as set on your drone's VTX.

Mobula6 drones navigating a race course, showcasing their agility.

The VTX power can be adjusted via Betaflight OSD or Configurator. Higher power (up to 400mW) provides better range and penetration but consumes more battery and generates more heat. Always comply with local regulations regarding VTX power output.

Maintenance

1. Cleaning

- After each flight, inspect the drone for dirt, dust, or debris, especially around the motors and propellers.
- Use a soft brush or compressed air to gently remove any foreign particles.
- Avoid using liquids or solvents directly on electronic components.

2. Propeller Replacement

Damaged propellers can significantly affect flight performance and stability. Replace them immediately if they are bent, cracked, or chipped.

1. Gently pull the damaged propeller straight up from the motor shaft.
2. Align a new propeller with the motor shaft and carefully push it down until it sits snugly. Ensure the propeller is oriented correctly (clockwise or counter-clockwise rotation as indicated by markings or motor direction in Betaflight).

3. Motor Care

The SE0702 brushless motors are durable but require occasional inspection.

- Check for any hair, string, or debris wrapped around the motor shafts. Remove carefully if found.
- Ensure motors spin freely without any grinding or resistance.
- If a motor feels rough or makes unusual noises, it may need replacement.

4. Firmware Updates

Periodically check the Happymodel website or relevant community forums for firmware updates for the SuperX ELRS AIO Flight Controller. Firmware updates can improve performance, add features, or fix bugs.

- Always follow the manufacturer's instructions carefully when performing firmware updates to avoid bricking the flight controller.
- Backup your current configuration before updating.

Troubleshooting

1. Drone Does Not Arm / Motors Do Not Spin

- **Check Battery:** Ensure the battery is fully charged and properly connected.
- **Radio Connection:** Verify that your radio transmitter is powered on and successfully bound to the drone.

The receiver LED should be solid.

- **Arming Switch/Command:** Confirm you are using the correct arming switch or stick command as configured in Betaflight.
- **Safety Features:** Betaflight has safety features that prevent arming (e.g., low battery, accelerometer not calibrated, motor output too high). Check the OSD or Betaflight Configurator for error messages.

2. No FPV Video Signal

- **Power:** Ensure the drone is powered on.
- **Frequency/Channel:** Verify that your FPV goggles/monitor are set to the exact same frequency and channel as the drone's VTX.
- **Antenna:** Check that the VTX antenna on the drone is securely attached and not damaged.
- **VTX Power:** Ensure the VTX power is not set to 0mW or a very low setting. Adjust in Betaflight if necessary.
- **Physical Damage:** Inspect the camera and VTX for any visible damage or loose connections.

3. Unstable Flight / Drifting

- **Propellers:** Check for damaged, bent, or loose propellers. Replace as needed.
- **Motor Issues:** Listen for unusual motor noises or vibrations. Inspect motors for debris or damage.
- **Center of Gravity:** Ensure the battery is securely mounted and the drone's weight is balanced.
- **Accelerometer Calibration:** Recalibrate the accelerometer in Betaflight Configurator on a perfectly level surface.
- **PID Tuning:** For advanced users, slight adjustments to PID (Proportional, Integral, Derivative) values in Betaflight may be necessary, though the factory tune is generally good.

4. Short Flight Time

- **Battery Health:** Your battery may be old or damaged. Try a new, healthy battery.
- **VTX Power:** Higher VTX power output (e.g., 400mW) consumes more battery. Consider lowering it if not needed.
- **Aggressive Flying:** Constant high throttle or aggressive maneuvers will deplete the battery faster.

Specifications

Feature	Specification
Model	Happymodel Mobula6 2024 (MO6EL26)
Wheelbase	65mm
Weight	17.7g (without battery)
Dimensions	81mm x 81mm x 37mm (3.2"L x 3.2"W x 1.4"H)

Feature	Specification
Flight Controller	SuperX ELRS AIO 5-IN-1 Flight Controller
Receiver	Integrated Serial ExpressLRS Receiver
Motors	SE0702 KV28000 Brushless Motors
Camera	FX17-B 1/3 CMOS 800TVL Camera
Video Transmitter (VTX)	Onboard OpenVTX, 25mW~400mW adjustable
Recommended Battery	1S LiPo/LiHV (not included)
Material	Plastic
Skill Level	Intermediate or Advanced

Warranty and Support

For warranty information, technical support, or service inquiries, please contact the manufacturer, Shaluoman, or your authorized dealer. Keep your proof of purchase for any warranty claims.
For additional resources and community support, consider visiting online FPV forums and communities dedicated to Happymodel products.

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